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# MADRAS RECORD OFFICE.

Government of Madras.

*Public Works* DEPARTMENT.

|                     |                   |
|---------------------|-------------------|
| G.O. No. <u>361</u> | Press <u>Mis.</u> |
| <u>415-416</u>      |                   |
| Dated <u>19-10-</u> | <u>1865.</u>      |

Not to be folded or roughly handled

9/9

*Proceedings of the Madras Government, Public Works Department,  
19th October 1865.*

No. 415. Read the following Proceedings of the Madras Government in the Revenue Department:—

Requesting that an Officer may be specially appointed to superintend the Negapatam and Vedarniem Canal, Tanjore District, and that the work as now estimated for by the Superintending Engineer 6th Division, may be speedily completed. (Here enter 28th September 1865, No. 2,347.)

No. 416. ORDER THEREON, 19th October 1865, No. 3,101.

**CIVIL WORKS, No. 59.**

1. The Governor in Council sanctions the revised estimate of Rupees 64,000, submitted by the Superintending Engineer of the 6th Division, for completing the line of water communication between Negapatam and Vedarniem. The work may be at once proceeded with from any balance which remains unspent of the sum of Rupees 9,345, allotted to the work in question during the current year. If possible, a further grant will be made hereafter; and in preparing his Budget for 1866-67, the Superintending Engineer will make provision for carrying on the work.

2. Captain Oakes will report whether, in his opinion, the clearing out of the channels can be most advantageously performed by means of a steam dredge, or a hand dredge. If it be thought advisable to use the latter, a plan, showing all the constructive details, should be prepared without delay, so that no time may be lost in having the dredge made at the Mint. If a steam dredge be thought preferable, perhaps the one now at Negapatam could be made use of.

3. The Government hope to be able, at an early date, to detail an Officer for the special charge of the Canal works.

(True Extract.)

(Signed) CHARLES A. ORR, Colonel, R. E.,  
*Secretary to Government.*

To the Superintending Engineer, 6th Division.  
„ Controller of Public Works Accounts.  
„ Revenue Department.  
„ Accountant General.

Exd. S. T. Augustin.

*of water was  
in a portion of the old course of  
the*

No 60

Supy Engineer's Office 6<sup>th</sup> Dr  
Lanjore 5<sup>th</sup> September 1865.

From

Captain R. F. Oakes R. E.

Ag Supy Engineer 6<sup>th</sup> Dr

To

Colonel C. A. Orr R. E.

Secretary to Government P. W. D.

Sir

With reference to the Order of

Government notes I marginally, I  
have the honor to report upon the  
Canal between Nagapataun and  
Vedaraniand.

2 The original line of Communi-  
cation proposed by Mr W. Fraser & Co  
is marked on the Plan by a  
broad red line. It commenced  
at A in the Cuddavayan basin  
at Nagapataun and followed the  
straight cut from A to B where  
a Bridge on Road No 36 spans it.  
This cut which was made in 1848  
has silted up very much and at  
LW on the 13<sup>th</sup> June some portions  
of it were dry, the greatest depth  
of water was 1' and that at 222  
in a portion of the old Course of  
the

No 919 dated  
5<sup>th</sup> April  
No 1074 dated  
22<sup>nd</sup> April -  
1865.

the River, to the North of this spot the bed is sandy, to its South the channel has become filled with alluvial deposit to a depth of from 1' to 3', its consistency is about that of treacle, and it may appropriately be termed "liquid mud". The breadth of the cutting is 11 yards.

3 From B to C the Canal was to follow the tortuous course of the Valligaur Calagum and thence by the cut C D of 1854 was to join the Valligaur at D. The Calagum has become much silted up, its depth at L W varies from  $\frac{1}{2}$ ' to  $2\frac{1}{4}$ ' except in its lower reaches from X to Y where the depth is from  $2\frac{3}{4}$ ' to  $3\frac{3}{4}$ '.

These are the depths at the sets or deep portions of the bed; much of the bed is almost dry at L W. The bottom consists chiefly of liquid mud. The straight cut of 1854 from C to D is for the most part dry at L W. It is 6 yards broad.

4 The whole of this line

I propose to abandon,

I Because there would be great difficulty

difficulty in clearing out these channels to a proper depth, viz 3' below L W.

II Because shoals would constantly be formed in a course so tortuous as that of the Calagum.

III Because the new line could probably, with care, be cut to its full depth through dry land with a proper section throughout.

IV Because while the whole of the line originally proposed would require a constant annual expenditure for maintenance, nearly half the line now proposed is already navigable at all times and only  $3\frac{7}{8}$  Miles would have to be maintained, and the latter line being the straighter would be less apt to shoal than the former.

V Because while a Dredge can pass under the Cuddamigaur Bridge at Y on the New line, it cannot pass under the Bridge at B on the line originally proposed.

5 The difference in the length of the two lines is only 448 yards and is in favor of the line now proposed.

m. 7. 1901  
7-1-193.

| Estimate | Distance |      |
|----------|----------|------|
| 17000    | m 7      | 1901 |
| 24760    | 7-1      | 193. |
| 7760     | "-2-     | 8    |

proposed, not so however the prime  
cost of their construction in which  
there is a difference of Rs 7760 -  
The excess in the New line is chiefly  
attributable to the value of land  
to be taken up and the cost of  
two Syphon Sluices.

6 The average depth of water  
at L W in the Cuddavayam straight  
cut from the Bridge at V to the basin  
at Nagapattanam is from 3' to 5'  
except at T where it enters the  
basin and here there is a shoal  
which would form annually  
during the Monsoon and would  
have to be removed by means  
of a Dredge.

7 South of the point D where  
the line originally proposed meets  
the Valliyannur channel is proposed,  
the line follows the Valliyannur for  
rather more than a mile and a half  
to the New Cut at E and with the  
exception of shoals at the points  
at which two surplus channels  
meet the River, the Valliyannur  
may be said to be navigable  
at all seasons by such boats as  
it.

1172  
it is proposed to make use of on  
the Canal. The shoals will have  
to be removed as they form, by  
means of a Dredge through the  
agency of the Conservancy Es-  
tablishment.

8 The New Cut from E to F will  
be in good order except where three  
surplus streams meet it and there  
shoals & bars formed. No Sluices  
have yet been supplied for these  
surplus streams though two are  
provided for in the original Es-  
timate and the bank has been  
cut open by the Villagers to  
admit of their surplus waters  
escaping, a catch drain will  
be provided on the west side of  
this portion of the Canal to dis-  
charge the surplus waters into  
the Chundramuddu and  
Valliyannur.

9 The Chundramuddu is  
passed under the Canal by a  
syphon sluice at F, but is  
allowed to join the Canal  
again near E: the course of the  
tail of the River will be altered

as marked in yellow - so as to give it a separate discharge into the Velligam - This may be done from a small balance on the original Estimate.

10 It is anticipated that the Ly-phow Sluice will have been reported in Letter No 2,855, from this Office -

Dated  
1<sup>st</sup> April  
1865.

11 Proceeding Southwards from F the Canal follows the drainage streams the Ramnadai and Pampaw Voicals and the Koodrichit-tigam - At the point at which the Canal is to enter the Ramnadai Voical, the bed of that channel is  $6\frac{1}{4}$ ' above the floor of the Bridge across the Canal at F, the level of which is fixed at 3' below L W - A line of levels down these streams shows their section and the excavation required to reduce their beds to the level of the bed of the Canal, the excavations vary from about  $1\frac{1}{4}$ ' to 6' in depth, - the average being from  $2\frac{1}{2}$ ' to 3' - A few cross sections are forwarded to give an idea of the

the nature of these streams - The Estimate has been prepared from cross sections taken at intervals of 400' - In 1847 and 1848 an attempt was made to divert the drainage of the Country Eastward at H, but without success - The line of the Canal follows the main drainage streams of the portion of the Country through which it passes from F to K, and with few exceptions it is not proposed to supply Sluices at the points where the minor streams meet it -

12 The Ramnadai Voical flows from F to G, runs for the most part through cultivated lands and Sluices must be provided where the minor drainage streams meet the Canal; the larger are to be left open; they are embanked to prevent the land from being submerged by backwater during inland freshets - From G to H the Pampaw Voical passes through the Karapadagay Village lands, which

- and are now but little

little cultivated. A Catch drain for a distance of 3,000 yards, on the West side will concentrate some of the minor drainage streams and discharge the water at S. The larger streams will be left open

13. The Panamadai and Pampai Voeals have been much injured by dams thrown across them for the purpose of irrigation and of fishing and are very much shoaled in particular localities in consequence. The bed consists of a liquid mud from 2' to 3' in depth; they are embanked on both sides.

14. The Noodichittiyar from H. to K runs through low waste ground of a sandy nature and receives the drainage of the land from both sides. It is embanked on its Eastern side only, but the drainage has breached the bank in several places and owing to the sandy and shifting nature of the soil and the unevenness of the ground, it is not possible to concentrate the drainage by means

of

of Catch drains. On its Western side there is no bank, here its waters and those of the Hurri Chundramudde creek, during the prevalence of inland floods, over a plateau of ground varying from 200 to 2,000 yards, in breadth, and from 1' to 2' above the level of H.W. The bed of the stream is consequently much shoaled.

15. From K to L the Canal follows the line of the Adapaian River which has a depth of from 9' to 12' of water at all seasons and stages of the tide.

16. The River portion of the Canal from the Adapaian to the Salt Pans at Vedaramian is shoaled like pathways cross it and where deep pits have been formed in the Padugay, this is being remedied by a temporary establishment sanctioned by the local authorities.

17. The estimate for opening out a complete line of communication by water between Vedaramian and the Cuddavayan basin at Negapatan by the line

from M to L.

line now proposed is Rs 64,000 and is made up as follows:

| Length in |         |         | Name of River or Channel                                     | Amount | Remarks                                                                                                            |
|-----------|---------|---------|--------------------------------------------------------------|--------|--------------------------------------------------------------------------------------------------------------------|
| Miles     | Fathoms | Yards   |                                                              |        |                                                                                                                    |
| 2         | 2       | 173 1/2 | Cuddavayan straight Cut from T to W                          | 000    | Shoal at entrance of Basin to be removed by Dredge by Government Co. L. L. & S. S. L.                              |
| 3         | 4       | 156     | New Cut from W to X                                          | 24760  |                                                                                                                    |
| -         | 2       | 96      | Velliyar Canal from X to Y                                   | 000    |                                                                                                                    |
| 2         | 2       | 104     | In Velliyar River from Y to E                                | 000    | Do Do                                                                                                              |
| 1         | 5       | 100     | New Cut lately completed from E to F                         | 1716   | Compensation for land already taken up and not yet paid - Vide G.O. No 3669, dated 22 <sup>nd</sup> December 1864. |
| 10        | -       | 140     | Ramanadri and Paupan bricols and Koodrichittayan from F to K | 39240  |                                                                                                                    |
| 8         | 6       | 66 2/3  | Along the Adipaan River from K to L                          | 000    |                                                                                                                    |
| 3         | 4       | 44      | Canal to Salt Pans completed from L to M                     | 000    |                                                                                                                    |
| 32        | 5       | 0       |                                                              | 65716  |                                                                                                                    |

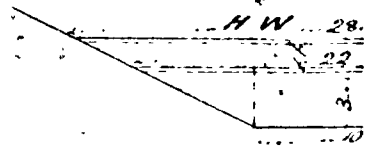
18. An item of Rs 2230 in the Estimate provides for an Under Tunnel at O for the supply of 200 Cuyles of land on the Eastern side of the Canal in the Karapadagay limits; this, properly speaking, should not be a charge on the Canal, but it must be constructed while the Canal

Canal is being cut, which will be necessary hereafter to close the Canal for a Season for the purpose of providing the means of irrigation for these lands from which an Annual return of Rs 5000, is expected.

19. In the Estimate a large amount, viz 5 Annas per Cubic yard is allowed for clearing the bed of the Ramanadri, Paupan and Koodrichittayan Channels as it may be necessary to clear them by means of a Dredge: but if the Season were a dry one, an attempt would be made to render these Channels dry by draining off as much water as possible at L W, and by dividing them into Sections and by evaporation assisted by baling and by drainage from Section to section, the upper portions of the excavation at least, and perhaps the excavation to the full depth may be carried out dry and the proper Section secured. If this can be done a considerable saving

Saving on the Estimate may be effected -

20 The section given to the portion of the Canal already carried out from E to F and which has been adopted in the Estimate enclosed is as per margin, the bottom breadth being 10' and the side slopes 2 to 1. At L.W. therefore, the surface of water would measure 22' while the boats which when laden would draw  $2\frac{1}{4}'$  of water and are only  $7\frac{1}{4}'$  in beam could not pass each other with less than a surface width of 24' and then would have only 6" to spare between the boats. In the portion of the Canal to be newly excavated from W to X, three reefs had been provided to enable boats to pass each other at L.W. Were a breadth at bottom of 15' given to this portion of the Canal, the Estimate would be augmented by only Rs 3000 - where the Canal passes through existing streams no such reefs are



required as the boats in passing at L.W. might run into the soft mud of which the sides of the Canal will then consist -

21. A Plan and Section of the boat it is proposed to make use of on the Canal is enclosed. It will be 31' long with a breadth of beam of  $7\frac{1}{4}'$ , will be flat-bottomed, will be formed alike at bow and stern so as to go either way foremost and will when laden with 6 tons draw  $2\frac{1}{4}'$  of water.

From T to E

22. Situated as the Northern section of the Canal is between Rivers, which are influenced by the tide and therefore receiving its supply from several points at once, there will be much slack water in the Canal and during the Monsoon flooded as these Rivers are and laden as their waters are with deposit, there will necessarily be much silting in the Canal especially at the extremities in the neighbourhood of the Rivers - The

From E to K. Southern portion of the Canal

at

as already stated previous the  
drainage of a large area of  
Country by numerous channels,  
and shoals will be formed  
where these channels enter the  
Canal. It is clear therefore  
that a large sum will be re-  
quired annually to maintain the  
Canal in an efficient state; it  
is estimated at Rs 10000, this may  
perhaps be produced hereafter, but  
a large outlay will be required  
for some years probably in the  
Southern Section of the Canal  
where the alluvial deposit  
of which the bed chiefly con-  
sists will constantly be slipping  
into the deepen cut made for  
the Canal until the side slopes  
are reduced to 3 or 4 to 1 and at  
some the Natural Section at  
which the soft mud will stand.  
Under these circumstances it  
will be no easy matter to keep  
the Canal in an efficient state  
for the passage at L. W. of laden  
boats which draw  $2\frac{1}{4}$  of water,  
especially from February to June,  
when

Reply to para 2  
of G.O. No 699  
dated 30-  
March 1865  
Separate Re-  
venue.

117#  
when the Canal will receive  
no water from inland floods; I  
would therefore disprove an  
idea which has been suggested,  
that the Canal should be ren-  
dered navigable only at half tide.  
The Collector is also of opinion  
that the Canal to be of real use  
for the transport of Salt should  
be navigable at all times and  
Seasons.

23. If the Season is a dry  
one it may be possible to carry  
out the work provided for in  
the enclosed Estimates in one  
Season, but nothing certain  
can be said on this point, the  
more so, as labor is scarce in  
the portion of the District  
through which the Canal is  
to pass and the work is not  
such as is popular among the  
Coolies, as a portion of it may  
have to be carried out in  
water; a special Executive  
Agent will be required to su-  
perintend the work: when  
Completed the Canal will be  
navigable.

Navigable at all times and seasons, but a Dredge must be constantly at work removing obstructions where they may have been formed. With such a Dredge the Canal cannot be kept in an efficient state. A small Dredge for the conservation of the Canal is therefore a *line qua non*.

24 With reference to paras 1 and 2 of G.O. No 719 of the 5<sup>th</sup> of April, 1865, I have the honor to enclose Captain Mullins' original report which was forwarded to Government with Letter No 1422 from this Office, and in a marginal remark (to para 5) which is in Captain Mullins' handwriting, the statement is made which is adverted to in Mr Roberts' letter to Mr Adell 3<sup>rd</sup> 1865 No 314. That an outlay of one lac of Rupees would probably be required to complete the Canal. This remark does not appear in the Office copy of Captain Mullins' report, and may possibly have

Dated 22<sup>nd</sup> Aug 63 -

Dated 14<sup>th</sup> Nov 63 -

Called for in para 2 of G.O. No 699 30<sup>th</sup> March Separate Re-  
view -

have been made after the report was returned from the Government Office.

25 A few marginal remarks have been made in Captain Mullins' original report showing in what respects his statements have been found to be erroneous from the more detailed and careful examination which has now been made of the line proposed for the Canal.

26 Where H.W. and L.W. have been used in the report, tidal high and low water is referred to.

27 The Report is forwarded through the collector as his countersignature is required to the following papers which accompany it -

- 1 Sketch Map of the whole line of Canal from Vedaraviam to Sath Pura to Nopalatam (on a large scale).
- 1 Line of Levels along the Ramandam and Pampar Vicals and the Koodrichilligam with

with 9. Cross Section.

2 Lines of Levels along the Course  
of the proposed new cut from  
W to Y.

A Plan and Section of a Boat  
4. Plans and Sections of Siphons  
and ordinary Sluices.

1 Abstract Estimate  
Captain Mullins' original re-  
port on the Canal  
dated 22<sup>d</sup> August 1863.

I have the honor to be  
Sir  
Your most obed<sup>t</sup> & servanth

W. F. Bates Captain R.E.  
Adjut<sup>nt</sup> & Engineer 6<sup>th</sup> Dr

Communicatio

Geo. W. P.

## Abstract Estimate

Tanjore District

Kegapatan & Tritapundi Salegs.

Work. — Opening a Canal between Negapatam  
and Vedarnam.

| Quantities | Description of Work.                                                                                               | Rate | Amount  | Amount of each part |
|------------|--------------------------------------------------------------------------------------------------------------------|------|---------|---------------------|
|            | From Kuddiyam straight Cut to Vellayam Calagum near Bridge on Road No 36.                                          |      |         |                     |
| 36633      | Cu by 2 of Earthwork - pr cgd                                                                                      | 2    | 4579 2  |                     |
| 4625       | do Cutting Catch drains on east side - do                                                                          | 1    | 289 1   |                     |
|            | From Vellayam Calagum near Bridge on Road No 36 to the Vellayam "From X to E"                                      |      |         |                     |
| 79233      | Cu by 2 of Earthwork - pr cgd                                                                                      | 2    | 9904 2  |                     |
| 11165      | do Cutting catch drains on east side - do                                                                          | 1    | 697 13  |                     |
|            | Thrs. Ramanathan & Panpan Vicals and the Kodachintyur commencing from the junction of the latter with the Adapaar. |      |         |                     |
| 99022      | Cu by 2 of Earthwork - pr cgd                                                                                      | 5    | 30944 6 |                     |
| 7500       | do Catch Drains -                                                                                                  | 1    | 468 12  |                     |
|            | Sundries & Carting &c.                                                                                             |      | 2310 12 |                     |
|            | Total                                                                                                              |      | 49194   |                     |
|            | Cost of Masonry Works as per Appendix.                                                                             |      | 10470   |                     |
|            | Compensation for Land                                                                                              |      | 4336    |                     |
|            | Total Estimated Rupees.                                                                                            |      | 64000   |                     |

Supp. Engrs Office 6<sup>th</sup> Dec. 1865. *Wm. F. Wake* Captain P. E.  
 Fairbairn. 5<sup>th</sup> September 1865. *Wm. F. Wake* Captain P. E.  
 Supp. Engrs 5<sup>th</sup> Dec.

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Dated 5<sup>th</sup> Sept. 1865  
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Aug 29<sup>th</sup> 1890

According to the

Dear Friend Mr.

Johnston &  
McDonald

Free-19 Oct 17/85. 23 No 415-

112252

*Appendix of the Cost of erecting Masonry  
Works for Canal between Negapatam and  
Vedarineem.*

| <i>Quantities</i>                                                                                                                     | <i>Description of Work.</i>             | <i>Rate</i> | <i>Amount.</i> | <i>Amount of each part</i> |
|---------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------|----------------|----------------------------|
| <i>Constructing two Syphon sluices<br/>for Canal between Kuddavairam<br/>Straight Cut and Calagand near<br/>Bridge on Road No 36.</i> |                                         |             |                |                            |
| <i>Details of 1 sluice.</i>                                                                                                           |                                         |             |                |                            |
| 10382 1/2                                                                                                                             | <i>Cubft of Brick in Chimney proft.</i> | 2 6         | 1622 4 3       |                            |
| 486                                                                                                                                   | <i>do do do do</i>                      | 1 8         | 729            |                            |
| 1778                                                                                                                                  | <i>Suplft of Plastering proft.</i>      | 2 12        | 48 14 3        |                            |
|                                                                                                                                       | <i>Excavating Foundation</i>            |             | 45             |                            |
|                                                                                                                                       | <i>Centering</i>                        |             | 15             |                            |
|                                                                                                                                       | <i>Baling</i>                           |             | 45             |                            |
|                                                                                                                                       | <i>Amidies &amp; Contingencies</i>      |             | 244 13 6       |                            |
|                                                                                                                                       | <i>Total</i>                            |             | 2750           |                            |
|                                                                                                                                       | <i>For two sluices</i>                  | ea 2750     | 5500           |                            |
|                                                                                                                                       | <i>Total</i>                            |             |                | 5500                       |
| <hr/>                                                                                                                                 |                                         |             |                |                            |
| <i>Constructing two sluices of 1 Vth.<br/>of 6' span ea. for Ramanathan<br/>and Panpan Vicals.</i>                                    |                                         |             |                |                            |
| <i>Details of 1 sluice.</i>                                                                                                           |                                         |             |                |                            |
| 4740 3/2                                                                                                                              | <i>Cubft. Brick in Chimney proft.</i>   | 2 6         | 740 10 10      |                            |
| 1593                                                                                                                                  | <i>Suplft. of Plastering proft.</i>     | 2 12        | 43 12 11       |                            |
|                                                                                                                                       | <i>Excavating Foundation</i>            |             | 20             |                            |
|                                                                                                                                       | <i>Centering</i>                        |             | 12             |                            |
|                                                                                                                                       | <i>Baling</i>                           |             | 20             |                            |
|                                                                                                                                       | <i>Amidies &amp; Contingencies</i>      |             | 83 8 3         |                            |
|                                                                                                                                       | <i>Total</i>                            |             | 920            |                            |
|                                                                                                                                       | <i>For two sluices</i>                  | ea 920      | 1840           | 1840                       |
|                                                                                                                                       | <i>Total</i>                            |             |                | 7340                       |

193/2000/166

*193/2000/166*

*Proceedings of the Madras Government, Revenue Department,  
23rd September 1865.*

No. 590. Read the following letter from Captain R. F. OAKES, R. E., Acting  
Superintending Engineer, 6th Division, to Colonel C. A. ORR, R. E.,  
Secretary to Government, Public Works Department, dated Tanjore, 5th  
September 1865, No. 960:—

SIR,

1. With reference to the Orders of  
Government noted marginally, I have  
the honor to report upon the canal  
between Negapatam and Vedarniem.

No. 919, dated 5th April.  
„ 1,074, „ 22nd „ 1865.

2. The original line of communication proposed by Mr. W. Fraser, C. E.,  
is marked on the plan by a broad red line. It commenced at A. in the Cuddavi-  
yaur Basin at Negapatam, and followed the straight cut from A. to B., where a  
bridge on Road No. 36 spans it. This cut, which was made in 1848, has silted up  
very much, and at L. W. on the 13th June, some portions of it were dry, the greatest  
depth of water was 1 foot, and that at Z Z Z in a portion of the old course of the  
river; to the north of this spot the bed is sandy, to its south the channel has become  
filled with alluvial deposit to a depth of from 1 to 3 feet, its consistency is about  
that of treacle, and it may appropriately be termed "liquid mud." The breadth  
of the cutting is 11 yards.

3. From B to C the canal was to follow the tortuous course of the Velliya-  
ur Calagum, and thence by the cut C D of 1854 was to join the Velliya-  
ur at D. The Calagum has become much silted up, its depth at L. W. varies from  $\frac{1}{2}$  to  $2\frac{1}{4}$  feet, except  
in its last reach from Y to X, where the depth is from  $2\frac{1}{4}$  to  $3\frac{1}{4}$  feet. These are the  
depths at the sets or deep portions of the bed; much of the bed is almost dry at  
L. W. The bottom consists chiefly of liquid mud. The straight cut of 1854 from  
C to D is for the most part dry at L. W. It is 6 yards broad.

4. The whole of this line I propose to abandon:—

1st.—Because there would be great difficulty in clearing out these channels to  
a proper depth, viz., 3 feet, below L. W.

2nd.—Because shoals would constantly be formed in a course so tortuous as  
that of the Calagum.

3rd.—Because the new line could probably, with care, be cut to its full  
depth through dry land with a proper section throughout.

4th.—Because while the whole of the  
line originally proposed would require a  
constant annual expenditure for mainte-

nance, nearly half the line now proposed is already navigable at all times, and only  
 $3\frac{1}{2}$  miles would have to be maintained, and the latter line being the straighter would  
be less apt to shoal than the former.

5th.—Because while a dredge can pass under the Cuddaviyaur bridge at  
V. on the new line, it cannot pass under the bridge at B. on the line originally  
proposed.

| Miles. | Furlong. | Yards. |
|--------|----------|--------|
| 7      | 1        | 193    |

any value which

*Opening a  
canal between Negapatam  
& Vedarniem  
J.M.B. of 6th Sept 1865  
J.M.B. of 6th Sept 1865  
J.M.B. of 6th Sept 1865*

*No. 2612/65.  
J.M.B. of 6th Sept 1865  
J.M.B. of 6th Sept 1865*

| Estimate.<br>Rs. | Distance. |    |      |
|------------------|-----------|----|------|
|                  | M.        | F. | Yds. |
| 17,000           | 7         | 1  | 193  |
| 24,760           | 6         | 7  | 185  |
| 7,760            | 0         | 2  | 8.   |

line is chiefly attributable to the value of land to be taken up, and the cost of two syphon sluices.

6. The average depth of water at L. W. in the Cuddaviyaur straight cut from the bridge at Y to the basin at Negapatam is from 3 to 5 feet except at T, where it enters the basin, and here there is a shoal which would form annually during the monsoon, and would have to be removed by means of a dredge.

7. South of the point D, where the line originally proposed meets the Velliyaaur, no change is proposed, the line follows the Velliyaaur for rather more than a mile and a half to the new cut at E, and with the exception of shoals at the points at which two surplus channels meet the river, the Velliyaaur may be said to be navigable at all seasons by such boats as it is proposed to make use of on the canal. The shoals will have to be removed as they form, by means of a dredge through the agency of the Conservancy Establishment.

8. The new cut from E to F was in good order except where three surplus streams meet it, and there shoals had formed. No sluices have yet been supplied for these surplus streams though two are provided for in the original estimate, and the bank has been cut open by the villagers to admit of their surplus waters escaping; a catch drain will be provided on the west side of this portion of the canal to discharge the surplus waters into the Chundranuddee and Velliyaaur.

9. The Chundranuddee is passed under the canal by a syphon sluice at F, but is allowed to join the canal again near E: the course of the tail of the river will be altered as marked in yellow, so as to give it a separate discharge into the Velliyaaur. This may be done from a small balance on the original estimate.

Dated 1st April 1865.

10. It is anticipated that the syphon sluice will burst as reported in letter No. 2,855, from this Office.

11. Proceeding southwards from F the canal follows the drainage streams, the Ramanaden and Paupan Voicals, and the Koodrichittiyaur. At the point at which the canal is to enter the Ramanaden Voical the bed of that channel is 6½ feet above the floor of the bridge across the canal at F, the level of which is fixed at 3 feet below L. W. A line of levels down these streams shews their Section and the excavation required to reduce their beds to the level of the bed of the canal, the excavations vary from about 1½ to 6 feet in depth, the average being from 2½ to 3 feet. A few cross sections are forwarded to give an idea of the nature of these streams. The estimate has been prepared from cross sections taken at intervals of 400 feet. In 1847 and 1848 an attempt was made to divert the drainage of the country eastward at H, but without success. The line of the canal follows the main drainage streams of the portion of the country through which it passes from F to K, and with few exceptions it is not proposed to supply sluices at the points where the minor streams meet it.

12. The Ramanaden Voical from F to G runs, for the most part, through cultivated land, and sluices must be provided where the minor drainage streams meet the canal; the larger are to be left open; they are embanked to prevent the land from being submerged by backwater during inland freshes. From G to H the Paupan Voical passes through the Karapadagay village lands, which are very low, and are now but little cultivated. A catch-drain for a distance of 3,000 yards on the west side will concentrate some of the minor drainage streams, and discharge the waters at S. The larger streams will be left open.

13. The Ramanaden and Paupan Voicals have been much injured by dams thrown across them for the purpose of irrigation and of fishing and are very much shoaled in particular localities in consequence. Their bed consists of a liquid mud from 2 to 3 feet in depth; they are embanked on both sides.

14. The Koodrichittiyaur from H to K runs through low waste ground of a sandy nature, and receives the drainage of the land from both sides. It is embanked on its eastern side only, but the drainage has breached the bank in several places, and owing to the sandy and shifting nature of the soil and the unevenness of the ground, it is not possible to concentrate the drainage by means of catch drains. On its western side there is no bank, here its waters, and those of the Hurrichundranuddee meet, during the prevalence of inland floods, over a plateau of ground varying from 200 to 2,000 yards in breadth and from 1 foot to 2 feet above the level of H. W. The bed of the stream is consequently much shoaled.

15. From K to L the canal follows the line of the Adapaur river, which has a depth of from 9 to 12 feet of water at all seasons and states of the tide.

16. The new portion of the canal from the Adapaur to the Salt pans at Vedarniem is shoaled where pathways cross it, and where deep ruts have been formed in the Padugay, this is being remedied by a temporary Establishment sanctioned by the local authorities.

17. The estimate for opening out a complete line of communication by water between Vedarniem and the Cuddaviyaaur Basin at Negapatam by the line now proposed is Rupees 64,000, and is made up as follows:—

| Length in |           |        | Name of river or channel.                                            | Amount. | Remarks.                                                                                                         |
|-----------|-----------|--------|----------------------------------------------------------------------|---------|------------------------------------------------------------------------------------------------------------------|
| Miles.    | Furlongs. | Yards. |                                                                      |         |                                                                                                                  |
| 2         | 2         | 173½   | Cuddaviyaaur straight cut from T. to W. ... ..                       | 000     | Shoal at entrance of Basin to be removed by dredge, by Conservancy Establishment. Do. do.                        |
| 3         | 4         | 156    | New cut from W to Y ... ..                                           | 24,760  |                                                                                                                  |
| ...       | 2         | 96     | Velliyaaur Calagum from Y to X ... ..                                | 000     |                                                                                                                  |
| 2         | 2         | 104    | In Velliyaaur river from X to E ... ..                               | 000     | Compensation for land already taken up and not yet paid.— <i>Vide</i> G. O. No. 3,669, dated 22nd December 1864. |
| 1         | 5         | 100    | New cut lately completed from E to F ... ..                          | 1,716   |                                                                                                                  |
| 10        | ...       | 140    | Ramanaden and Paupan Voicals and Koodrichittiyaur from F to K ... .. | 39,240  |                                                                                                                  |
| 5         | 6         | 66½    | Along the Adapaur river from K to L ... ..                           | 000     |                                                                                                                  |
| 3         | 4         | 44     | Canal to Salt Pans completed from L to M ... ..                      | 000     |                                                                                                                  |
| 32        | 5         | 0      |                                                                      | 65,716  |                                                                                                                  |

any balance which

18. An item of Rupees 2,230 in the estimate provides for an under-tunnel at O for the supply of 200 Vaylies of land on the eastern side of the canal in the Karapadagay limits, this, properly speaking, should not be a charge on the canal, but it must be constructed while the canal is being cut; or it will be necessary hereafter to close the canal for a season for the purpose of providing the means of irrigation for these lands, from which an annual return of Rupees 5,000 is expected.

19. In the estimate a large amount, viz., 5 Annas per cubic yard, is allowed for clearing the beds of the Ramanaden, Paupan, and Koodrichittiyaur Channels, as it may be necessary to clear them by means of a dredge; but if the season were a dry one an attempt would be made to render these channels dry by draining off as much water as possible at L. W. and by dividing them into sections, and by evaporation assisted by baling and by drainage from section to section, the upper portions of the excavation at least, and perhaps the excavation to the full depth may be carried out dry, and the proper section secured. If this can be done a considerable saving on the estimate may be effected.

20. The section given to the portion of the canal already carried out from E to F, and which has been adopted in the estimates enclosed, is as per margin, the bottom breadth being 10 feet and the side slopes 2 feet to 1 foot. At L. W., therefore, the surface of water would measure 22 feet, while the boats which when laden would draw 2½ feet of water and are



only 7½ in beam could not pass each other with less than a surface width of 24 feet, and then would have only six inches to spare between the boats. In the portion of the canal to be newly excavated from W to Y, three recesses have been provided to enable boats to pass each other at L. W. Were a breadth at bottom of 15 feet given to this portion of the canal, the estimate would be augmented by only Rupees 3,000. Where the canal passes through existing streams no such recesses are required, as the boats in passing at L. W. might run into the soft mud of which the sides of the canals will there consist.

21. A plan and section of the boat it is proposed to make use of on the canal, is enclosed. It will be 31 feet long, with a breadth of beam of 7½ feet, will be flat-bottomed, will be formed alike at bow and stern, so as to go either way foremost and will when laden with six tons draw 2½ feet of water.

From T to E.

22. Situated as the northern section of the canal is between rivers which are influenced by the tide, and therefore receiving its supply from several points at once, there will be much slack water in the canal, and during the monsoon, flooded as these rivers are and laden as their waters are with deposit, there will necessarily be much silting in the canal especially at the extremities in the neighbourhood of the rivers. The southern portion of the canal, as already stated, receives the

From E to K.

drainage of a large area of country by numerous channels, and shoals will be formed where these channels enter the canal. It is clear, therefore, that a large sum will

be required annually to maintain the canal in an efficient state; it is estimated at Rupees 10,000, this may perhaps be reduced hereafter, but a large outlay will be required for some years probably, in the southern section of the canal, where the alluvial deposit of which the bed chiefly consists will constantly be slipping into the deeper cut made for the canal until the side slopes are reduced to 3 feet or 4 feet to 1 foot, and assume the natural section at which the soft mud will stand. Under these circumstances it will be no easy matter to keep the canal in an efficient state for the passage at L. W. of laden boats which draw 2½ feet of water, especially from February to June, when the canal will receive no water from inland floods, I would therefore deprecate an idea which has been suggested, that the canal should be rendered navigable only at half tide. The Collector is also of opinion that the canal to be of real use for the transport of salt should be navigable at all times and seasons.

23. If the season is a dry one it may be possible to carry out the work provided for in the enclosed estimates in one season, but nothing certain can be said on this point, the more so as labor is scarce in the portion of the District through which the canal is to run, and the work is not such as is popular among the coolies as a portion of it may have to be carried out in water; a Special Executive Agent will be required to superintend the work: when completed the canal will be navigable at all times and seasons, but a dredge must be constantly at work removing obstructions where they may have been formed. Without a dredge the canal cannot be kept in an efficient state. A small dredge for the conservation of the canal is therefore a *sine qua non*.

24. With reference to paragraphs 1 and 2 of G. O. No. 919 of the 5th of April 1865, I have the honor to enclose

\* Dated 22nd August 1863.

† Dated 14th November 1863.

† No. 314, 3rd February 1865. marginal remark (to paragraph 5), which is in Captain Mullins' hand writing, the statement is made which is adverted to in Mr. Roberts' letter† to Mr. Cadell that an outlay of one lac of Rupees would probably be required to complete the canal. This remark does not appear in the Office copy of Captain Mullins' report, and may possibly have been made after the report was returned from the Government Office.

25. A few marginal remarks have been made in Captain Mullins' original report, shewing in what respects his statements have been found to be erroneous from the more detailed and careful examination which has now been made of the line proposed for the canal.

26. Where H. W. and L. W. have been used in the report, tidal high and low water is referred to.

balance which

27. The report is forwarded through the Collector as his countersignature is required to the following papers which accompany it:—

Called for in paragraph 2 of G. O. No. 699, 30th March, Separate Revenue. 1 Sketch Map of the whole line of Canal from Vedarniem Salt Pans to Negapatam (on a large scale).

- 1 Line of levels along the Ramanaden and Paupan Voicals, and the Koodrichittiyaur with nine cross sections.
- 2 Lines of levels along the course of the proposed new cut from W. to Y.
- A Plan and Section of a boat.
- 4 Plans and Sections of syphon and ordinary sluices.
- 1 Abstract Estimate.
- Captain Millins' original report on the Canal, dated 22nd August 1863.

#### MEMORANDUM.

1. In this letter the Superintending Engineer of the 6th Division reports upon the Negapatam and Vedarniem Canal, and submits the estimate for completing the line of water communication called for in the Order\* marginally noted.

\* No. 1,074, 22nd April 1865.

2. It will be seen that Captain Oakes proposes to abandon the first 7 miles of the original line leading southward from Negapatam; and the alternative line which he recommends follows the course of the Cuddavyaur for  $2\frac{1}{4}$  miles, and is then taken, by a nearly straight cut,  $3\frac{1}{2}$  miles in length, into the Vellyaur, which river it joins at a point  $\frac{3}{4}$  mile below where the original line entered it.

3. From this point southwards to Vedarniem no change is proposed; the entire distance being  $3\frac{1}{4}$  miles and 5 furlongs, or  $\frac{1}{4}$  mile shorter than the original line.

4. The estimate now submitted for opening the canal throughout amounts to Rupees 64,000, and the annual cost of maintenance is calculated at Rupees 10,000.

5. The report of the Superintending Engineer seems conclusive as to the advantages which the line now proposed possesses over the original line; but it may be fairly doubted whether the sum entered in the estimate represents the full cost of the undertaking.

6. Taking into consideration the nature of the ground through which a great part of the canal will be carried, and which will probably necessitate an amount of excavation far in excess of the actual section proposed, and noting also, that no provision has been made for the cost of a dredge, which is an essential part of the scheme, it seems more than probable that the expense of completing the project will exceed a lac of Rupees; while the subsequent annual charges for maintenance will certainly not fall short of the sum named by the Superintending Engineer.

\* Revenue Department, 30th March 1865, No. 699, and 11th April 1865, No. 790.

7. With these remarks the papers will be transferred, with reference to the Order\* marginally noted, for consideration in the Revenue Department, as to whether the advantages likely to result from the opening of the canal are such as to justify so large an outlay.

FORT SAINT GEORGE, (Signed) J. H. M. SHAW STEWART, Major, R. E.,  
18th September 1865. Under Secretary to Government, P. W. D.

No. 591. ORDER THEREON, 28th September 1865, No. 2,347.

Separate Revenue, No. 35.  
Salt.

1. The Government do not doubt that even at the increased cost this work will prove amply remunerative by inducing increased sales of salt.
2. Measures must be taken to meet the very large demand for salt which is certain to arise when the extension of the line of Rail to Errode is completed, and it is certain that only from Vedarniem can the necessary supply be obtained.
3. The Government therefore desire that the canal be pressed to completion as speedily as possible after the necessary preliminaries have been arranged, and that an intelligent Officer be specially appointed to superintend the work.

(True Extract.)

*[Signature]*  
Acting Secretary to Government.

To the Public Works Department. *[Signature]*  
" Board of Revenue.

Exd. S. T. Augustin.

*20 Cakes sent*

*any balance which*

MSV

PT 1863 Dehra  
Pro. of Govt for  
No. 913.

Pro. of Govt in the  
Revenue Dept

D. 28 Sept 1863  
Recd. 9 Oct

B12 No. 2347

Requesting that  
an Officer may be  
specially appointed to  
superintend the Mega-  
patam and Vedarman  
Canal, Tanjore Dt and  
that the work may  
be speedily complet-  
ed.

N. 4/5

c. 12th Oct 1863 Dr. 16th

MS. 3101 - 19th Oct 1863

Public Works Department  
MS. 3101  
Proceedings of the Madras Government  
Under date the 17th Oct 1863

Read the following

Proceedings of Govt in the  
Revenue Department.

Requesting that an Officer  
may be specially appointed to  
superintend the Megapalam and  
Vedarman Canal, Tanjore Dt and  
that the work is now estimated  
for by the Superint. of the Govt may  
be speedily completed.

D. 28th Sept 1863 No. 2347

The Governor  
Council sanctions the re-  
vised estimate of Rs. 64,000  
submitted by the Super-  
intending Engineer of the  
Govt Division for completing  
the line of water commu-  
nication between Megapalam  
and Vedarman. The  
work may be at once  
proceeded with from  
any balance which  
remains

Wm

remains unspent of the  
sum of Rupees 9,345,  
allotted to the work in  
question during the current  
year. If possible, a  
further grant will be made  
hereafter, and in preparing  
his Budget for 1866/67,  
the Superintending Engineer  
will make provision for  
carrying on the work.

Captain Baker  
 will report whether, in his  
 opinion, the clearing out  
 of the channels <sup>can</sup> ~~be~~  
 be most advantageously  
 performed by means  
 of a steam dredge, or a  
 hand dredge. If it be  
 thought advisable to use

the latter, a plan, showing  
all the constructive details,  
should be prepared without  
delay, so that no time  
may be lost in having  
the dredge made at the  
Mint. If a steam dredge  
be thought preferable, per-  
haps the one now at  
-Regeneration could be  
made use of.

The Government  
hope to be able, at an  
early date, to designate  
an Officer for the special  
charge of the Canal works.

5 The Sup. J. 6<sup>th</sup> 9<sup>th</sup> With Captain Bullins Report  
 4 " L. J. 10<sup>th</sup> 11<sup>th</sup>  
 2 " L. J. 12<sup>th</sup> 13<sup>th</sup>  
 3 " L. J. 14<sup>th</sup> 15<sup>th</sup>

5  
 20<sup>th</sup> October.

